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In re Patent Application of:
YOON
Serial No. **09/988,881**
Filing Date: **November 20, 2001**

In the Specification:

Please replace the paragraph beginning at page 3, line 34, with the following rewritten paragraph:

An object of the present invention is to provide a pulley type constant velocity joint in which ~~an~~ elongate ~~member~~ members or ~~wire is~~ wires are wound around the circumferential grooves of two pulleys, thereby allowing the range of the intersection angle of input and output shafts to be maximized while transmitting the velocity of the input shaft to the output shaft.

B2

Please replace the paragraph beginning at page 4, line 8, with the following rewritten paragraph:

Another object of the present invention is to provide a pulley type constant velocity joint in which the ~~wire is~~ wires are wound around the circumferential grooves of the pulleys to allow the input and output shafts to maintain bilateral symmetry with each other and to transmit the axial rotation velocity of the input shaft to the output shaft to cause the structure of the joint to be relatively simple.

B3

Please replace the paragraph beginning at page 4, line 15, with the following rewritten paragraph:

A further object of the present invention is to provide a pulley type constant velocity joint in which the ~~wire is~~ wires are wound around the circumferential grooves of

B4

the pulleys to transmit the axial rotation velocity of the input shaft to the output shaft and reduce the failure rate of the joint.

B1 (cont'd)

Please replace the paragraph beginning at page 4, line 21, with the following rewritten paragraph:

To accomplish the above objects, the present invention provides a pulley type constant velocity joint which may include first and second shafts for transmitting and receiving power therebetween, first and second pulleys being fixedly attached to ends of the first and second shafts, respectively, and ~~a wire~~ first and second wires wound around the circumferential grooves of the first and second pulleys to allow the first and second pulleys to be rotated with ~~reference~~ respect to the center of the first and second pulleys. Furthermore, first and second support frames may also be included for rotatably supporting each center of the first and second pulleys, both ends of which are rotatably connected with each other. The pulley type constant velocity joint may also include two rotating pins to rotatably connect with the first and second pulleys and the frames at the centers of the first and second pulleys, and two connecting pins for connecting the first and the second frames at their ends and for allowing the frames to rotate according to the rotation of the first and second shafts.

B2

Please replace the paragraph beginning at page 5, line 7, with the following rewritten paragraph:

The present invention also relates to a pulley type constant velocity joint which may include first and second shafts for transmitting and receiving power therebetween, first and second pulleys being fixedly attached to each end of said first and second shafts and symmetrically rotating with respect to each center thereof as a first degree of freedom, and ~~a wire~~ first and second wires wound around the circumferential grooves of the first and second pulleys to symmetrically rotate the first and second pulleys with ~~reference~~ respect to each of the centers. Additionally, first and second support frames may be included for rotatably supporting each center of the first and second pulleys and rotatably connecting both ends thereof as a second degree of freedom.

Please replace the paragraph beginning at page 5, line 21, with the following rewritten paragraph:

Further, the present invention also provides a pulley type constant velocity joint which may include first and second shafts, first and second pulleys, and ~~a wire~~ first and second wires to make the first and second shafts have a first degree of freedom and transmit and receive power therebetween. In addition, first and second support frames may be included to make the first and second shafts have a second degree of freedom and transmit and receive power therebetween.

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Please add the following new paragraph beginning at page 6, line 21:

--FIGS. 7A and 7B are front and plan views, respectively, showing operation of the pulley type constant velocity joint in accordance with the present invention when the shafts rotate at a respective predetermined position to transmit and receive rotating power therebetween.--

Please replace the paragraph beginning at page 6, line 23, with the following rewritten paragraph:

Turning now to FIGS. 3 and 4, FIG. 3 is a front view showing the construction of a pulley type constant velocity joint in accordance with the present invention, and FIG. 4 is a plan view showing the construction of the pulley type constant velocity joint of FIG. 3. As illustrated in the drawings, the pulley type constant velocity joint 100 of the present invention includes first and second shafts 200 and 210 as input and output shafts, respectively, first and second support frames 400 and 410 for allowing the first and second shafts 200 and 210 to be rotated around rotating pins ~~250~~ 250a, 250b, and two connecting pins 450 for connecting the first and second support frames 400 and 410 to allow them to be rotated relative to each other.

Please replace the paragraph beginning at page 7, line 3, with the following rewritten paragraph:

Two pulleys 300 and 310 are fixedly attached to the inner ends of the first and second shafts 200 and 210. ~~An~~ First and second elongate ~~member~~ members or ~~wire 500 is~~ wires 501, 502 are wound around the circumferential grooves of the pulleys 300 and 310 ~~to cross itself~~ in a crossing position and ~~is~~ are fixed at predetermined positions 501a, 502a and 501b, 502b on the pulleys, respectively. Accordingly, if the first shaft 200 is rotated around one rotating pin ~~250A~~ 250b, the second shaft 210 is rotated around the other rotating pin ~~250B~~ 250b at the same time. Therefore, the first and second shafts 200 and 210 maintain bilateral symmetry with each other at all times. Here, the ~~wire 500 is~~ the wires 501, 502 are preferably made of metal to enhance ~~its~~ their durability.

Please replace the paragraph beginning at page 7, line 16, with the following rewritten paragraph:

The first pulley 300 is fixedly attached to the inner end of the first shaft 200, which functions as an input shaft, while the second pulley 310 is fixedly attached to the inner end of the second shaft 210, which functions as an output shaft. The first pulley 300 is rotatably supported by the first support frame 400 at the center of the first support frame 400, while the second pulley 310 is rotatably supported by the second support frame 410 at the center of the second support frame 410. In such a case, a plurality of through holes are formed through the centers of the first and second pulleys 300 and 310 and the centers of the first and second frames 400 and 410, and the rotating pins ~~250A and 250B~~ 250a

and 250b are inserted into the through holes.

Please replace the paragraph beginning at page 7, line 31, with the following rewritten paragraph:

Each of the first and second pulleys 300 and 310 has a disk shape, and each of the first and second support frames 400 and 410 has an arc shape. The disk-shaped pulleys 300 and 310 are rotatably attached at their centers to the support frames 400 and 410 by the rotating pins ~~250~~ 250a, 250b. Two couples of neighboring ends of the support frames 400 and 410 are connected by the connecting pins 450 to allow them to be rotated, respectively. The first and second pulleys 300 and 310 are secured in place by the first and second support frames 400 and 410, which have portions adjacent both sides of the first and second pulleys (see FIG. 4), and are capable of being rotated around the rotating pins ~~250~~ 250a, 250b.

Please replace the paragraph beginning at page 8, line 8, with the following rewritten paragraph:

The ~~wire 500 is~~ wires 501, 502 are wound around the circumferential grooves of the first and second pulleys 300 and 310 to cross itself to form a figure-eight loop. By the ~~wire 500~~ wires 501, 502, when the first pulley 300 is rotated, the second pulley 310 is rotated at the same rate in the opposite direction, thereby causing the rotation of the first and second pulleys 300 and 310 to be symmetric. Accordingly, the first shaft 200 attached to the first pulley 300 and the

second shaft 210 attached to the second pulley 310 are symmetrically rotated.

Please replace the paragraph beginning at page 8, line 19, with the following rewritten paragraph:

In this case, the ~~wire 500 is~~ wires 501, 502 are preferably fixed to the inner ends of the first and second shafts 200 and 210 at 501a, 502a, and 501b, 502b, respectively, to prevent the wire 500 from slipping on the circumferential grooves of the first and second pulleys 300 and 310. Two holding portions 460 are formed on both ends of each connecting pin 450, which connect the first and second support frames 400 and 410 to prevent the connecting pins 450 from being removed from the first and second support frames 400 and 410.

Please replace the paragraph beginning at page 9, line 3, with the following rewritten paragraph:

The pulley type constant velocity joint 100 of the present invention is situated at a position where the first and second shafts 200 and 210 are connected to each other. It should be noted here that the intersection angles of the first and second shafts 200 and 210 are described relative to the XYZ axis orientation provided in ~~FIG. 3~~ the figures.

Please replace the paragraph beginning at page 9, line 32, with the following rewritten paragraph:

In this case, as the first shaft 200 is rotated, the axis connecting the two connecting pins 450 is situated on the plane dividing the intersection angle of the first and second support frames 400 and 410 into two equal angles. As described above, each of the first and second shafts 200 and 210 has two degrees of freedom in the ~~X~~ Z and Y-axes.

B16

Please replace the paragraph beginning at page 10, line 4, with the following rewritten paragraph:

Next, when a driving force is applied to the first shaft 200, the operation of the pulley type constant velocity joint is as follows. The plane bisecting the supporting frames 400 and 410 passes through the connecting pins 450. This bisecting plane is always the plane of symmetry of the constant velocity joint 100. Accordingly, the first and second shafts 200 and 210 are always moving in symmetry with respect to this bisecting plane, which is also the plane of symmetry. This symmetricalness includes the axial rotations of the first and second shafts 200 and 210. That is, the first and second shafts 200 and 210 axially rotate in the same angular velocity no matter what the angle is between the first and second shafts 200 and 210. Operation of the CV joint when the shafts 200, 210 rotate at respective predetermined positions to transmit and receive power therebetween is shown in FIGS. 7A and 7B.

B17

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Please replace the paragraph beginning at page 10, line 19, with the following rewritten paragraph:

As described above, the present invention provides a pulley type constant velocity joint in which the ~~wire 500 is~~ wires 501, 502 are wound around the circumferential grooves of the pulleys 300 and 310 ~~to cross itself~~ and cross one another. Thus, the first and second pulleys 300 and 310 are operated in conjunction with each other. This thereby allows the input and output shafts to be symmetrically situated and causes the rotational movement of the input shaft to be transmitted to the output shaft at the same velocity.

B1r

Please replace the paragraph beginning at page 10, line 29, with the following rewritten paragraph:

In contrast to the conventional constant velocity joint of the prior art, the pulley type constant velocity joint of the present invention has a relatively simple structure in which the ~~wire 500 is~~ wires 501, 502 are wound around the circumferential grooves of the pulleys 300 and 310. Accordingly, the pulley type constant velocity joint has a low failure rate due to its relatively simple structure.

B1g